# Lab 2.02 - can I or can’t I

## In your notebook

Predict if each of the following examples will produce a True or False output. Check your answers in interactive mode.

### Example 1

>>> a = 100  
 >>> b = "science"  
 >>> a > 75 and b == "science"

### Example 2

>>> a = 100  
 >>> b = "science"  
 >>> a > 75 and b != "science"

### Example 3

>>> a = 100  
 >>> b = "science"  
 >>> a > 75 or b != "science"

### Example 4

>>> a = 100  
 >>> b = "science"  
 >>> c = True  
 >>> not c and a > 75 and b == "science"

## In your console

### Complete the following coding challenge

1. Create a “Can I be President?” program, which determines if the user meets the minimum requirements for becoming the President of the United States. Have the user input the information needed.

* **The minimum requirements to be president of the United States are:**
  + Older than 35
  + Resident of US for 14 Years
  + Natural born citizen
  + Print true if the person could be president and false if they can’t be president.
* Print true if the user cannot be President and false if they can be President.

1. Create a “Can I ride the roller coaster?” program. It will check to see if the user meets the minimum requirements to ride the roller coaster. Have the user input the information needed.

* **Requirements to ride the roller coaster:**
  + Height over 50 inches – loophole allows any height if older than 18
  + Each ride costs 4 quarters.
  + There is a frequent rider pass, which makes the rides only cost 2 quarters.
* Print True if the user can ride the roller coaster, and False if not.

## Bonus

### Are the following expressions equivalent? Research DeMorgan’s Laws and write why you think they are the same or why they are not the same

not(x or y) == not x and not y

not(x and y) == not x or not y